

## We Claim:

- 1 1. An apparatus for injecting dry powder comprising:
  - 2 a container;
  - 3 means for creating an aerosol of the dry powder within the container;
  - 4 a conduit at the upper portion of the container having an inlet end and a discharge end,
  - 5 wherein the inlet end comprises an ejector and introduces a pressurized gas into the container
  - 6 and the discharge end is bifurcated wherein one portion connects to the ejector and the other
  - 7 portion discharges the aerosol of the powder; and
  - 8 a shaker for shaking the container vertically.
- 1 2. The apparatus of claim 1, wherein the pressurized gas is helium or argon.
- 1 3. The apparatus of claim 1, wherein the ratio of diameter of the ejector to the inlet is about 0.25  
2 to about 0.9.
- 1 4. The apparatus of claim 3, wherein the ratio is about 0.4 to about 0.6.
- 1 5. The apparatus of claim 1, wherein the dry powder comprises a metal catalyst supported on a  
2 powdered oxide substrate wherein the powdered oxide substrate has a particle size of 0.5  $\mu\text{m}$  to 5  
3  $\mu\text{m}$ .
- 1 6. The apparatus of claim 5, wherein the shaker comprises a vibrator, two or more vertical bars  
2 extending upwards from the vibrator, a horizontal bar in between the vertical bars, and a spring  
3 on one or more of the vertical bars, wherein the container is placed on top of the vibrator and in  
4 between the vertical bars, and the electromagnet acts to shake the container vertically.
- 1 7. The apparatus of claim 6, wherein the spring is located immediately below the horizontal bar.
- 1 8. An apparatus for injecting dry powder, the apparatus comprising;
  - 2 a first end;
  - 3 an end opposite;
  - 4 an ejector located between the first end and the end opposite; and

5 aerosolized dry powder confined between the ejector and the end opposite wherein  
6 pressured gas is introduced through the first end, and the end opposite is bifurcated wherein one  
7 portion discharges the aerosolized powder and the other portion loops back and connects to the  
8 ejector.

1 9. The apparatus of claim 8, wherein the pressurized gas is helium or argon.

1 10. The apparatus of claim 8, wherein the first end comprises a tube.

1 11. The apparatus of claim 10, wherein the tube is composed of a material selected from the  
2 group consisting of glass, plastic, ceramic, and metal.

1 12. The apparatus of claim 11, wherein ratio of diameter of the tube to the ejector is about 1.1 to  
2 about 4.

1 13. The apparatus of claim 12, wherein the ratio is about 1.6 to about 2.5.

1 14. The apparatus of claim 8, wherein the dry powder comprises a metal catalyst supported on a  
2 powdered oxide substrate wherein the powdered oxide substrate has a particle size of 0.5  $\mu\text{m}$  to 5  
3  $\mu\text{m}$ .

1 15. An apparatus for injecting dry powder, the apparatus comprising;

2 a first end;

3 an end opposite;

4 an ejector located between the first end and the end opposite; and

5 a container comprising means of creating an aerosol of the dry aerosolized dry powder  
6 located between the ejector and the end opposite wherein the container is shaken vertically using  
7 a shaker comprises a vibrator, two or more vertical bars extending upwards from the vibrator, a  
8 horizontal bar in between the vertical bars, and a spring on one or more of the vertical bars,  
9 wherein the container is placed on top of the vibrator and in between the vertical bars, and the  
10 spring acts to shake the container vertically, and

11 wherein pressured gas is introduced through the first end, and the end opposite is  
12 bifurcated wherein one portion discharges the aerosolized powder and the other portion loops  
13 back and connects to the ejector.

- 1    16. The apparatus of claim 15, wherein the first end comprises a tube.
- 1    17. The apparatus of claim 16, wherein the tube is composed of a material selected from the  
2    group consisting of glass, plastic, ceramic, and metal.
- 1    18. The apparatus of claim 16, wherein ratio of diameter of the tube to the ejector is about 1.1 to  
2    about 4.
- 1    19. The apparatus of claim 15, wherein the ratio is about 1.6 to about 2.5.